

What is claimed is:

1. A magnetron cathode comprising three or more magnet units, each of which comprises a single magnet, wherein one magnet unit is disposed around the outer circumference of another magnet unit and adjacent magnet units have opposite poles facing toward the same direction.
2. The magnetron cathode according to claim 1, wherein the magnet units are symmetrically disposed around the same axis.
3. The magnetron cathode according to claim 1, wherein the innermost magnet unit has a hollow cavity inside thereof.
4. The magnetron cathode according to claim 1, wherein each of the magnet units is formed in a circular shape.
5. The magnetron cathode according to claim 1, wherein each of the magnet units is formed in a polygonal shape.
6. The magnetron cathode according to claim 4 or 5, wherein each of the magnet units comprises a plurality of magnets having the same poles facing toward the same direction.

7. A magnetron sputtering apparatus comprising:
 - a first electrode on which a substrate is disposed;
 - a target facing the substrate and made of a material to be deposited on the substrate;
 - a second electrode disposed on the rear surface of the target;
 - a magnetron cathode disposed behind the second electrode and comprising three or more magnet units, each of which comprises a single magnet, wherein one magnet unit is arranged around the outer circumference of another magnet unit and adjacent magnet units have opposite poles facing toward the same direction; and
 - a support member supporting the magnetron cathode.
8. The magnetron sputtering apparatus according to claim 7, wherein the magnet units are symmetrically disposed around the same axis.
9. The magnetron sputtering apparatus according to claim 7, wherein the innermost magnet unit has a hollow cavity defined by the support member inside thereof.
10. The magnetron sputtering apparatus according to claim 9, further comprising a cooling tube in which cooling water flows, which is disposed in the hollow cavity.

11. The magnetron sputtering apparatus according to claim 7, wherein each of the magnet units is formed in a circular shape.
12. The magnetron sputtering apparatus according to claim 7, wherein each of the magnet units is formed in a polygonal shape.
13. The magnetron sputtering apparatus according to claim 7, wherein each of the magnet units comprises a plurality of magnets having the same poles facing toward the same direction.
14. The magnetron sputtering apparatus according to claim 8, wherein each of the magnet units comprises a plurality of magnets having the same poles facing toward the same direction.
15. The magnetron sputtering apparatus according to claim 7, wherein the substrate is disposed as close to the target as the $1/4$ or less of the width of the target.
16. The magnetron sputtering apparatus according to claim 7, further comprising a nozzle, which is disposed near the target to supply an inert gas.

17. The magnetron sputtering apparatus according to claim 7,
wherein the first electrode is an anode and the second electrode is a
cathode.